

## CLAIMS

1. An encoding device characterized by
- 2 comprising:
  - 3 wavelet transforming means for dividing a two-dimensional
  - 4 signal into subbands as a plurality of frequency regions;
  - 5 coefficient extracting means for extracting sets of coefficients for
  - 6 every predetermined number of sets of coefficients which belong to the same
  - 7 spatial position from a plurality of subbands which belong to a wavelet
  - 8 decomposition level of the same hierarchy; and
  - 9 coefficient encoding means for encoding the extracted coefficient
  - 10 sets.

2. An encoding device according to claim 1,  
2 characterized in that said coefficient extracting means sequentially extracts a  
3 predetermined number of coefficient sets at a time in a scan line direction of the  
4 two-dimensional signal.

3. An encoding device according to claim 1,  
2 characterized in that said coefficient extracting means sequentially extracts  
3 coefficient sets one by one.

4. An encoding device characterized by
  - 2 comprising:
    - 3 element extracting means for sequentially extracting  $2m \times 2$  ( $m$   
4 is an integer:  $m \geq 1$ ) spatially adjacent elements from a two-dimensional signal;
    - 5 wavelet transforming means for dividing the  $2m \times 2$  elements
    - 6 into a plurality of subband coefficient sets;
    - 7 coefficient encoding means for encoding the coefficient sets; and
    - 8 code output means for rearranging the encoded coefficient sets in
    - 9 order from a low-resolution subband, and outputting the rearranged coefficient

10 sets.

5. An encoding device according to claim 1,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient encoding means encodes each component of a  
5 coefficient, and generates a code by concatenating a code of each component  
6 below each coefficient.

6. An encoding device according to claim 4,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient encoding means encodes each component of a  
5 coefficient, and generates a code by concatenating a code of each component  
6 below each coefficient.

7. An encoding device according to claim 1,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient encoding means encodes each component of a  
5 coefficient, and generates a code by concatenating a code of each coefficient  
6 below each component.

8. An encoding device according to claim 4,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient encoding means encodes each component of a  
5 coefficient, and generates a code by concatenating a code of each coefficient  
6 below each component.

9. An encoding device according to claim 1,  
2 characterized by further comprising coefficient thinning map generating means

3 for generating a coefficient thinning map in which resolution at each spatial  
4 coordinate of the two-dimensional signal is set,  
5 wherein said coefficient extracting means refers to the coefficient  
6 thinning map, and extracts coefficients by thinning the coefficients to the  
7 resolution set for the coordinate.

10. An encoding device according to claim 4,  
2 characterized by further comprising coefficient thinning map generating means  
3 for generating a coefficient thinning map in which resolution at each spatial  
4 coordinate of the two-dimensional signal is set,  
5 wherein said coefficient extracting means refers to the coefficient  
6 thinning map, and extracts coefficients by thinning the coefficients to the  
7 resolution set for the coordinate.

11. An encoding device according to claim 9,  
2 characterized in that in the coefficient thinning map, resolution of a photograph  
3 region of the two-dimensional signal differs from resolution of a region other  
4 than a photograph.

12. An encoding device according to claim 10,  
2 characterized in that in the coefficient thinning map, resolution of a photograph  
3 region of the two-dimensional signal differs from resolution of a region other  
4 than a photograph.

13. An encoding device according to claim 11,  
2 characterized in that in the coefficient thinning map, the resolution of the  
3 photograph region of the two-dimensional signal is set lower than the resolution  
4 of the region other than a photograph.

14. An encoding device according to claim 12,  
2 characterized in that in the coefficient thinning map, the resolution of the  
3 photograph region of the two-dimensional signal is set lower than the resolution

4 of the region other than a photograph.

15. An encoding device according to claim 9,  
2 characterized in that in the coefficient thinning map, resolution of a region in  
3 which a displacement of an adjacent element value is relatively large differs  
4 from resolution of a region in which the displacement is relatively small in the  
5 two-dimensional signal.

16. An encoding device according to claim 10,  
2 characterized in that in the coefficient thinning map, resolution of a region in  
3 which a displacement of an adjacent element value is relatively large differs  
4 from resolution of a region in which the displacement is relatively small in the  
5 two-dimensional signal.

17. An encoding device according to claim 16,  
2 characterized in that in the coefficient thinning map, the resolution of the region  
3 in which the displacement of the adjacent element value is relatively large is set  
4 lower than the resolution of the region in which the displacement is relatively  
5 small in the two-dimensional signal.

18. An encoding device according to claim 9,  
2 characterized by further comprising updated region detecting means for  
3 detecting a updated region from a plurality of sequential frames of a sequence of  
4 a  
5

5 plurality of frames forming the two-dimensional signal,  
6 wherein said coefficient thinning map generating means  
7 generates a coefficient thinning map in which resolution of the updated region  
8 differs from resolution of a region other than the updated region.

19. An encoding device according to claim 10,  
2 characterized by further comprising updated region detecting means for  
3 detecting a updated region from a plurality of sequential frames of a sequence of  
4 a plurality of frames forming the two-dimensional signal,

5 wherein said coefficient thinning map generating means  
6 generates a coefficient thinning map in which resolution of the updated region  
7 differs from resolution of a region other than the updated region.

20. An encoding device according to claim 18,  
2 characterized in that  
3                   said updated region detecting means detects, as a updated region,  
4 a region in which a signal value is updated in said plurality of sequential frames,  
5 and  
6                   said coefficient thinning map generating means sets resolution of  
7 the detected updated region lower than resolution of a region other than the  
8 updated region.

21. An encoding device according to claim 19,  
2 characterized in that  
3                   said updated region detecting means detects, as a updated region,  
4 a region in which a signal value is updated in said plurality of sequential frames,  
5 and  
6                   said coefficient thinning map generating means sets resolution of  
7 the detected updated region lower than resolution of a region other than the  
8 updated region.

22. An encoding device according to claim 18,  
2 characterized in that  
3                   said updated region detecting means obtains a period during  
4 which a signal value changes in each partial region from said plurality of  
5 sequential frames, and  
6                   said coefficient thinning map generating means sets resolution of  
7 the coefficient thinning map on the basis of the changing period.

23. An encoding device according to claim 18,  
2 characterized in that  
3                   said updated region detecting means obtains a period during  
4 which a signal value changes in each partial region from said plurality of  
5 sequential frames, and  
6                   said coefficient thinning map generating means sets resolution of  
7 the coefficient thinning map on the basis of the changing period.

24. An encoding device according to claim 22,  
2 characterized in that said coefficient thinning map generating means sets low  
3 resolution in a region in which the changing period is long.

25. An encoding device according to claim 23,  
2 characterized in that said coefficient thinning map generating means sets low  
3 resolution in a region in which the changing period is long.

26. An encoding device according to claim 1,  
2 characterized by further comprising:  
3                   coefficient quantization map generating means for generating a  
4 coefficient quantization map indicating quantization accuracy at each spatial  
5 coordinate of the two-dimensional signal; and  
6                   coefficient quantizing means for quantizing a coefficient to  
7 quantization accuracy corresponding to a spatial coordinate of the coefficient by

8 referring to the coefficient quantization map,  
9 wherein said coefficient encoding means encodes a set of the  
10 quantized coefficients.

27. An encoding device according to claim 4,  
2 characterized by further comprising:  
3 coefficient quantization map generating means for generating a  
4 coefficient quantization map indicating quantization accuracy at each spatial  
5 coordinate of the two-dimensional signal; and  
6 coefficient quantizing means for quantizing a coefficient to  
7 quantization accuracy corresponding to a spatial coordinate of the coefficient by  
8 referring to the coefficient quantization map,  
9 wherein said coefficient encoding means encodes a set of the  
10 quantized coefficients.

28. An encoding device according to claim 26,  
2 characterized in that in the coefficient quantization map, quantization accuracy  
3 of a photograph region of the two-dimensional signal differs from quantization  
4 accuracy of a region other than a photograph.

29. An encoding device according to claim 27,  
2 characterized in that in the coefficient quantization map, quantization accuracy  
3 of a photograph region of the two-dimensional signal differs from quantization  
4 accuracy of a region other than a photograph.

30. An encoding device according to claim 28,  
2 characterized in that in the coefficient quantization map, the quantization  
3 accuracy of the photograph region is set lower than the quantization accuracy of  
4 the region other than a photograph.

31. An encoding device according to claim 29,  
2 characterized in that in the coefficient quantization map, the quantization

3 accuracy of the photograph region is set lower than the quantization accuracy of  
4 the region other than a photograph.

32. An encoding device according to claim 27,  
2 characterized in that in the coefficient quantization map, quantization accuracy  
3 of a first region, in which a displacement of an adjacent element value is larger  
4 than a threshold value, of the two-dimensional signal differs from quantization  
5 accuracy of a second region in which the displacement is smaller than the  
6 threshold value.

33. An encoding device according to claim 32,  
2 characterized in that in the coefficient quantization map, the quantization  
3 accuracy of the second region is set lower than the quantization accuracy of the  
4 first region.

34. An encoding device according to claim 26,  
2 characterized by further comprising updated region detecting means for  
3 detecting a updated region from a plurality of sequential frames of a sequence of  
4 a plurality of frames forming the two-dimensional signal,  
5 wherein said coefficient quantization map generating means  
6 generates a coefficient quantization map in which quantization accuracy of the  
7 updated region differs from quantization accuracy of a region other than the  
8 updated region.

35. An encoding device according to claim 27,  
2 characterized by further comprising updated region detecting means for  
3 detecting a updated region from a plurality of sequential frames of a sequence of  
4 a plurality of frames forming the two-dimensional signal,  
5 wherein said coefficient quantization map generating means  
6 generates a coefficient quantization map in which quantization accuracy of the  
7 updated region differs from quantization accuracy of a region other than the

8      updated region.

36. An encoding device according to claim 34,

2      characterized in that

3                said updated region detecting means detects, as a updated region,

4      a region in which a signal value is updated in said plurality of sequential frames,

5      and

6                said coefficient thinning map generating means sets quantization

7      accuracy of the detected updated region lower than quantization accuracy of a

8      region other than the updated region.

37. An encoding device according to claim 35,

2      characterized in that

3                said updated region detecting means detects, as a updated region,

4      a region in which a signal value is updated in said plurality of sequential frames,

5      and

6                said coefficient thinning map generating means sets quantization

7      accuracy of the detected updated region lower than quantization accuracy of a

8      region other than the updated region.

38. An encoding device according to claim 34,

2      characterized in that

3                said updated region detecting means obtains a period during

4      which a signal value changes in each partial region from said plurality of

5      sequential frames, and

6                said coefficient quantization map generating means sets

7      quantization accuracy of the coefficient quantization map on the basis of the

8      changing period.

39. An encoding device according to claim 35,

2      characterized in that

3                   said updated region detecting means obtains a period during  
4    which a signal value changes in each partial region from said plurality of  
5    sequential frames, and

6                   said coefficient quantization map generating means sets  
7    quantization accuracy of the coefficient quantization map on the basis of the  
8    changing period.

40. An encoding device according to claim 38,  
2    characterized in that said coefficient thinning map generating means sets low  
3    quantization accuracy in a region in which the changing period is long.

41. An encoding device according to claim 39,  
2    characterized in that said coefficient thinning map generating means sets low  
3    quantization accuracy in a region in which the changing period is long.

42. An encoding device according to claim 18,  
2    characterized in that said updated region detecting means detects a updated  
3    region by calculating a difference between said plurality of sequential frames.

43. An encoding device according to claim 19,  
2    characterized in that said updated region detecting means detects a updated  
3    region by calculating a difference between said plurality of sequential frames.

44. An encoding device according to claim 34,  
2    characterized in that said updated region detecting means detects a updated  
3    region by calculating a difference between said plurality of sequential frames.

45. An encoding device according to claim 35,  
2    characterized in that said updated region detecting means detects a updated  
3    region by calculating a difference between said plurality of sequential frames.

46. An encoding device according to claim 18,  
2    characterized in that said updated region detecting means detects, as a updated  
3    region, an overlapping region of a region to be encoded of a preceding frame

4 and a region to be encoded of a succeeding frame.

2                   47. An encoding device according to claim 19,  
3                   characterized in that said updated region detecting means detects, as a updated  
4                   region, an overlapping region of a region to be encoded of a preceding frame  
and a region to be encoded of a succeeding frame.

2                   48. An encoding device according to claim 34,  
3                   characterized in that said updated region detecting means detects, as a updated  
4                   region, an overlapping region of a region to be encoded of a preceding frame  
and a region to be encoded of a succeeding frame.

2                   49. An encoding device according to claim 35,  
3                   characterized in that said updated region detecting means detects, as a updated  
4                   region, an overlapping region of a region to be encoded of a preceding frame  
and a region to be encoded of a succeeding frame.

2                   50. A decoding device characterized by  
3                   comprising:

3                   initial coefficient decoding means for receiving a code sequence  
4                   formed by encoding coefficients of a plurality of subbands obtained by wavelet  
5                   transform, and decoding a coefficient of a lowest-frequency subband from a  
6                   code sequence corresponding to the lowest-frequency subband;

7                   coefficient decoding means for decoding sets of coefficients for  
8                   every predetermined number of sets of coefficients which belong to the same  
9                   spatial position in a plurality of subbands which belong to a wavelet transform  
10                  level of the same hierarchy from a code sequence following the  
11                  lowest-frequency subband code sequence; and

12                  inverse wavelet transforming means for performing inverse  
13                  wavelet transform whenever the coefficient set is decoded, thereby generating  
14                  the original two-dimensional signal.

51. A decoding device according to claim 50,  
2 characterized in that said coefficient decoding means sequentially decodes a  
3 predetermined number of coefficient sets at a time in a scan line direction of the  
4 two-dimensional signal.

52. A decoding device according to claim 51,  
2 characterized in that said coefficient decoding means sequentially decodes the  
3 coefficient sets one by one.

53. A decoding device according to claim 52,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient decoding means decodes each component of a  
5 coefficient, and concatenates each component below each coefficient.

54. A decoding device according to claim 52,  
2 characterized in that  
3 each coefficient comprises a plurality of components, and  
4 said coefficient decoding means decodes each component of a  
5 coefficient.

55. An encoding method characterized by  
2 comprising the steps of:  
3 dividing a two-dimensional signal into subbands as a plurality of  
4 frequency regions by wavelet transform;  
5 extracting sets of coefficients for every predetermined number of  
6 sets of coefficients which belong to the same spatial position from a plurality of  
7 subbands which belong to a wavelet decomposition level of the same hierarchy;  
8 and  
9 encoding the extracted coefficient sets.

56. An encoding method according to claim 55,

2 characterized in that in the extracting step, a predetermined number of  
3 coefficient sets are sequentially extracted at a time in a scan line direction of the  
4 two-dimensional signal.

57. An encoding method according to claim 55,  
2 characterized in that in the extracting step, coefficient sets are sequentially  
3 extracted one by one.

58. An encoding method characterized by  
2 comprising the steps of:  
3 sequentially extracting  $2m \times 2$  ( $m$  is an integer:  $m \geq 1$ ) spatially  
4 adjacent elements from a two-dimensional signal;  
5 dividing the  $2m \times 2$  elements into a plurality of subband  
6 coefficient sets by wavelet transform;  
7 encoding the coefficient sets; and  
8 rearranging the encoded coefficient sets in order from a  
9 low-resolution subband, and outputting the rearranged coefficient sets.

59. An encoding method according to claim 55,  
2 characterized by further comprising the step of generating a coefficient thinning  
3 map in which resolution at each spatial coordinate of the two-dimensional signal  
4 is set,  
5 wherein in the extracting step, the coefficients which belong to  
6 the same spatial position are extracted after being thinned to the resolution set  
7 for the coordinate by referring to the coefficient thinning map.

60. An encoding method according to claim 58,  
2 characterized by further comprising the step of generating a coefficient thinning  
3 map in which resolution at each spatial coordinate of the two-dimensional signal  
4 is set,  
5 wherein in the extracting step, the coefficients of the  $2m \times 2$

6 elements are extracted after being thinned to the resolution set for the coordinate  
7 by referring to the coefficient thinning map.

61. An encoding method according to claim 59,  
2 characterized by further comprising the step of detecting a updated region from  
3 a plurality of sequential frames of a sequence of a plurality of frames forming  
4 the two-dimensional signal,

5 wherein in the step of generating the coefficient thinning map, a  
6 coefficient thinning map in which resolution of the updated region differs from  
7 resolution of a region other than the updated region is generated.

62. An encoding method according to claim 60,  
2 characterized by further comprising the step of detecting a updated region from  
3 a plurality of sequential frames of a sequence of a plurality of frames forming  
4 the two-dimensional signal,

5 wherein in the step of generating the coefficient thinning map, a  
6 coefficient thinning map in which resolution of the updated region differs from  
7 resolution of a region other than the updated region is generated.

63. An encoding method according to claim 55,  
2 characterized by further comprising the steps of:  
3 generating a coefficient quantization map indicating quantization  
4 accuracy at each spatial coordinate of the two-dimensional signal; and  
5 quantizing coefficients which belong to the same spatial position  
6 to quantization accuracy corresponding to spatial coordinates of the coefficients  
7 by referring to the coefficient quantization map,  
8 wherein in the encoding step, a set of the quantized coefficients  
9 are encoded.

64. An encoding method according to claim 58,  
2 characterized by further comprising the steps of:

3                   generating a coefficient quantization map in which quantization  
4   accuracy at each spatial coordinate of the two-dimensional signal is set; and  
5                   quantizing coefficients of the  $2m \times 2$  elements to quantization  
6   accuracy corresponding to spatial coordinates of the coefficients by referring to  
7   the coefficient quantization map,  
8                   wherein in the encoding step, a set of the quantized coefficients  
9   are encoded.

65. An encoding method according to claim 63,  
2   characterized by further comprising the step of detecting a updated region from  
3   a plurality of sequential frames of a sequence of a plurality of frames forming  
4   the two-dimensional signal,  
5                   wherein in the step of generating the coefficient quantization  
6   map, a coefficient quantization map in which quantization accuracy of the  
7   updated region differs from quantization accuracy of a region other than the  
8   updated region is generated.

66. An encoding method according to claim 64,  
2   characterized by further comprising the step of detecting a updated region from  
3   a plurality of sequential frames of a sequence of a plurality of frames forming  
4   the two-dimensional signal,  
5                   wherein in the step of generating the coefficient quantization  
6   map, a coefficient quantization map in which quantization accuracy of the  
7   updated region differs from quantization accuracy of a region other than the  
8   updated region is generated.

67. An encoding method according to claim 65,  
2   characterized in that the step of generating the coefficient quantization map is  
3   executed before the step of encoding a subband coefficient set.

68. An encoding method according to claim 66,

2 characterized in that the step of generating the coefficient quantization map is  
3 executed before the step of encoding a subband coefficient set.

69. An encoding method according to claim 67,  
2 characterized in that the step of generating the coefficient quantization map is  
3 executed before all steps of encoding a subband coefficient set.

70. An encoding method according to claim 68,  
2 characterized in that the step of generating the coefficient quantization map is  
3 executed before all steps of encoding a subband coefficient set.

71. A decoding method characterized by  
2 comprising the steps of:  
3 receiving a code sequence formed by encoding coefficients of a  
4 plurality of subbands obtained by wavelet transform;  
5 decoding a coefficient of a lowest-frequency subband from a  
6 code sequence corresponding to the lowest-frequency subband;  
7 decoding sets of coefficients for every predetermined number of  
8 sets of coefficients which belong to the same spatial position in a plurality of  
9 subbands which belong to a wavelet transform level of the same hierarchy from  
10 a code sequence following the lowest-frequency subband code sequence; and  
11 performing inverse wavelet transform whenever the coefficient  
12 set is decoded, thereby generating the original two-dimensional signal.

72. A decoding method according to claim 71,  
2 characterized in that in the decoding step, a predetermined number of coefficient  
3 sets are sequentially decoded at a time in a scan line direction of the  
4 two-dimensional signal.

73. A decoding method according to claim 72,  
2 characterized in that in the decoding step, the coefficient sets are sequentially  
3 decoded one by one.

74. An encoding program characterized by

2 causing a computer to execute the steps of:

3 dividing a two-dimensional signal into subbands as a plurality of  
4 frequency regions by wavelet transform;

5 extracting sets of coefficients for every predetermined number of  
6 sets of coefficients which belong to the same spatial position from a plurality of  
7 subbands which belong to a wavelet decomposition level of the same hierarchy;  
8 and

9 encoding the extracted coefficient sets.

75. An encoding program characterized by

2 causing a computer to execute the steps of:

3 sequentially extracting  $2m \times 2$  ( $m$  is an integer:  $m \geq 1$ ) spatially  
4 adjacent elements from a two-dimensional signal;

5 dividing the  $2m \times 2$  elements into a plurality of subband  
6 coefficient sets by wavelet transform;

7 encoding the coefficient sets; and

8 rearranging the encoded coefficient sets in order from a  
9 low-resolution subband, and outputting the rearranged coefficient sets.

76. An encoding program according to claim

2 74, characterized by causing the computer to execute the steps of:

3 generating a coefficient thinning map in which resolution at each  
4 spatial coordinate of the two-dimensional signal is set; and

5 extracting the coefficients which belong to the same spatial  
6 position by thinning the coefficients to the resolution set for the coordinate by  
7 referring to the coefficient thinning map.

77. An encoding program according to claim

2 75, characterized by causing the computer to execute the steps of:

3                   generating a coefficient thinning map in which resolution at each  
4   spatial coordinate of the two-dimensional signal is set; and  
5                   extracting coefficients of the  $2m \times 2$  elements by thinning the  
6   coefficients to the resolution set for the coordinate by referring to the coefficient  
7   thinning map.

78. An encoding program according to claim

2   76, characterized by causing the computer to execute the steps of:

3                   detecting a updated region from a plurality of sequential frames  
4   of a sequence of a plurality of frames forming the two-dimensional signal; and  
5                   generating a coefficient thinning map in which resolution of the  
6   updated region differs from resolution of a region other than the updated region.

79. An encoding program according to claim

2   77, characterized by causing the computer to execute the steps of:

3                   detecting a updated region from a plurality of sequential frames  
4   of a sequence of a plurality of frames forming the two-dimensional signal; and  
5                   generating a coefficient thinning map in which resolution of the  
6   updated region differs from resolution of a region other than the updated region.

80. An encoding program according to claim

2   74, characterized by causing the computer to execute the steps of:

3                   generating a coefficient quantization map in which quantization  
4   accuracy of a coefficient at each spatial coordinate of the two-dimensional signal  
5   is set; and  
6                   quantizing the coefficients which belong to the same spatial  
7   position to the quantization accuracy set for the coordinate by referring to the  
8   coefficient quantization map, and encoding the quantized coefficients.

81. An encoding program according to claim

2   75, characterized by causing the computer to execute the steps of:

3                   generating a coefficient quantization map in which quantization  
4   accuracy of a coefficient at each spatial coordinate of the two-dimensional signal  
5   is set; and

6                   quantizing the coefficients which belong to the same spatial  
7   position to the quantization accuracy set for the coordinate by referring to the  
8   coefficient quantization map, and encoding the quantized coefficients.

82. An encoding program according to claim

2   80, characterized by causing the computer to execute the steps of:

3                   detecting a updated region from a plurality of sequential frames  
4   of a sequence of a plurality of frames forming the two-dimensional signal; and  
5                   generating a coefficient quantization map in which quantization  
6   accuracy of the updated region differs from quantization accuracy of a region  
7   other than the updated region.

83. An encoding program according to claim

2   81, characterized by causing the computer to execute the steps of:

3                   detecting a updated region from a plurality of sequential frames  
4   of a sequence of a plurality of frames forming the two-dimensional signal; and  
5                   generating a coefficient quantization map in which quantization  
6   accuracy of the updated region differs from quantization accuracy of a region  
7   other than the updated region.

84. A decoding program characterized by  
2   causing a computer to execute the steps of:

3                   receiving a code sequence formed by encoding coefficients of a  
4   plurality of subbands obtained by wavelet transform;  
5                   decoding a coefficient of a lowest-frequency subband from a  
6   code sequence corresponding to the lowest-frequency subband;  
7                   decoding sets of coefficients for every predetermined number of

8 sets of coefficients which belong to the same spatial position in a plurality of  
9 subbands which belong to a wavelet transform level of the same hierarchy from  
10 a code sequence following the lowest-frequency subband code sequence; and  
11 performing inverse wavelet transform whenever the coefficient  
12 set is decoded, thereby generating the original two-dimensional signal.

85. A communication terminal characterized by  
2 comprising:  
3 image input means;  
4 communicating means for transmitting and receiving an encoded  
5 image signal;  
6 wavelet transforming means for dividing an image signal to be  
7 transmitted, which is input by said image input means, into subbands as a  
8 plurality of frequency regions;  
9 coefficient extracting means for extracting sets of coefficients for  
10 every predetermined number of sets of coefficients which belong to the same  
11 spatial position from a plurality of subbands which belong to a wavelet  
12 decomposition level of the same hierarchy;  
13 coefficient encoding means for encoding the extracted coefficient  
14 sets, and outputting the encoded coefficient sets to said communicating means;  
15 initial coefficient decoding means for decoding a coefficient of a  
16 lowest-frequency subband of a received image signal from a code sequence  
17 corresponding to the lowest-frequency subband;  
18 coefficient decoding means for decoding sets of coefficients for  
19 every predetermined number of sets of coefficients which belong to the same  
20 spatial position in a plurality of subbands which belong to a wavelet transform  
21 level of the same hierarchy from a code sequence following the  
22 lowest-frequency subband code sequence;

23                    inverse wavelet transforming means for performing inverse  
24    wavelet transform whenever the coefficient set is decoded, thereby generating  
25    the received image signal; and  
26                    image display means for displaying a received image on the basis  
27    of the received image signal.